SANYO

Sanyo Sounds Exciting!

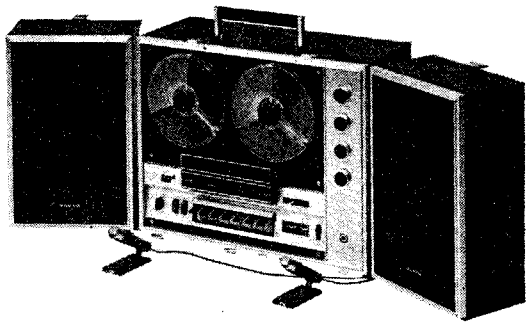
Auto-reverse Stereo Tape Recorder

MODEL MR-1020

SERVICE MANUAL

SANYO ELECTRIC CO., LTD.

INTERNATIONAL DIVISION : SANYO ELECTRIC TRADING CO., LTD.
OSAKA, JAPAN



SPECIFICATIONS

Speed accuracy	±2% Standard (7-1/2, 3-3/4 ips.) ±3% Standard (1-7/8 ips.)
Speed variation	2% Max. (start to end of reel)
Wow & flutter	0.2% Max. 7-1/2 ips. (RMS value) 0.25% Max. 3-3/4 ips. (RMS value) 0.35% Max. 1-7/8 ips. (RMS value)
Fast winding time	Up to 2 min. for 1200 ft., on 7″ reel
Sensitivity Mic. input	−70 to −72 dBm for standard rec. level on meter
AUX. input	−22 to −32 dBm for standard rec. level on meter
Power output (10% dist.)	5 Watts each channel
Cross-talk	
(channel-channel)	Better than 40 dB
(track-track)	Better than 65 dB
Bias frequency	80K Hz
Erase efficiency	At least 60 dB
Signal to noise ratio	Better than 40 dB without weighting network
Hum & noise	40 mV Max. volume and tone Max.

Gain balance (channel-channel) 3 dB Max. difference (overall record/play)

Frequency response (record/play)

SPEED	FREQUENCY (Hz)				
	100	1,000	3,000	5,000	10,000
7-1/2 ips.	+7 −3	0	—	—	+3 −7
3-3/4 ips.	+6 −4	0	—	+6 −6	—
1-7/8 ips.	—	0	+6 −6	—	—

Reel torque (gr/cm)

MODE	FEED REEL	TAKE-UP REEL
Play	32 - 200	165 - 400
Fast winding	32 - 200	1650 - 2970

Pinch roller pressure 1.1 - 1.5K gr.

Pad pressure 30 gr.

DISASSEMBLY

To remove the chassis and amplifier circuit from the cabinet in order to oil the mechanism, follow these steps:

I. Remove the amplifier part and the back of the chassis.
1. Remove the speaker box from the cabinet.
2. Place the set on a cushion with the front panel on the bottom.
3. Remove the four screw on the rear side, and the two on the bottom (Fig. 1).
4. Open the power source cord container cover and loosen it so that it will easily separate from the cabinet when it is raised.
5. Lift the cabinet up straight.

II. Remove the control panel.
1. Place the set so that the control panel is on top.
2. Pull off the Tone, Volume control, Program selector knobs and the top and bottom head covers.
3. Remove the Speed selector knob by turning it to the left.
4. Take off the eight screws from the surface of the control panel. (Fig. 2)
5. Lift off the control panel; be careful not to touch the lead cords for the heads or the auto stop lever.

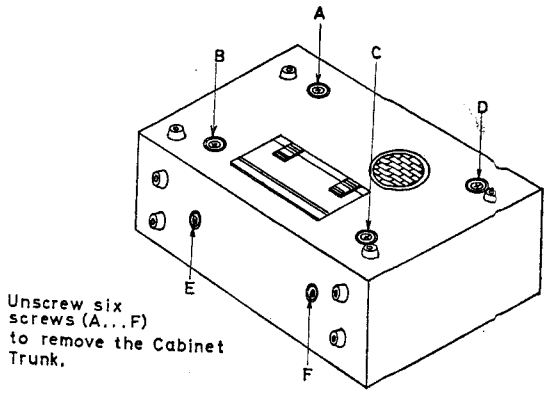
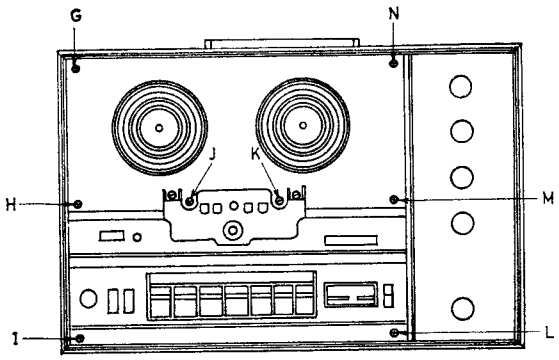


Fig. 1



Unscrew eight screws (G...N) to remove the Control Panel.

Fig. 2

MECHANICAL ADJUSTMENTS

I. Operation button pressure

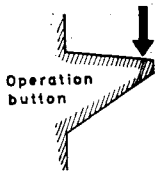


Fig. 3

To gauge how much power is required to change functions by pressing an operation button, press the button straight down, at a point 5mm from its edge. Press it with a spring scale (4 or 5 kg), and read the number at the time the operation button locks (see the figure below).

The standard pressures for changing operations are shown in the following table.

PLAY → STOP	less than 2k gr.
STOP → TAKE UP ▶▶	less than 3k gr.
STOP → TAKE UP ◀◀	less than 3k gr.
STOP → PLAY	less than 3k gr.

Press each DIRECTION button with the spring scale. Read the scale at the moment the lamp lights; the force required should be less than 500 gr.

ADJUSTMENT

If abnormal force is required to push an operation button, it can usually be brought within the above range by oiling the connected slide lever. In this case grease the contacting surfaces of the operation button lock slide (G1,2 and 3) and the slide supporting metal (G4 and G5).

II. Reel base tension

The tension of each reel base should be measured as shown in the figure below; this tension should be within the following range:

MEASUREMENT CONDITIONS

* Tape speed should be 7-1/2 ips.
* Use an empty 3 inch reel; on the hub wind one end of a piece of thread, and then attach a tension gauge.
thread, and then attach a tension gauge.

1. PLAY tension
   * Set the reel (with thread and tension gauge) on the right spindle, as shown in figure 4.
   Turn on the power switch and hold the lever to keep the auto stop from operating. Hold the tension gauge parallel with the plane of the reel and pull it in the rewind direction at a speed of about 5 cm/sec.
   * Normal tension is between 50 and 120 gr.
   * If the reading is not within this range, adjust as follows:
   Change the reel base and slip pully felt.
   Change the slip mechanism coil spring (N3) or plate spring (N7).

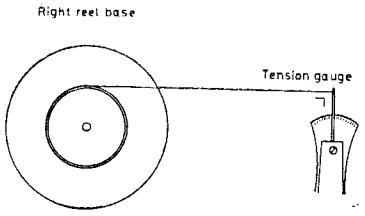


Fig. 4

2. PLAY and FWD back tension
   * Set the reel (with the string attached) on the spindle as shown in figure 5 and tie the tension gauge to the string. Turn on the power switch and hold the lever to keep the auto stop from operating. Press the PLAY or TAKE UP ▶▶ button. Move the tension gauge in the direction of the arrow at a speed of about 5 cm/sec, as shown in figure 5. At the moment the reel begins moving, read the gauge.
   * Normal tension is between 40 and 60 gr.
   * Adjustment can be done by changing the back tension lever (J11, J10) at the sides of the left and right reel bases, or by adjusting the pressure coil spring (J13). The back tension lever must be changed if its felt is dusty or oily.

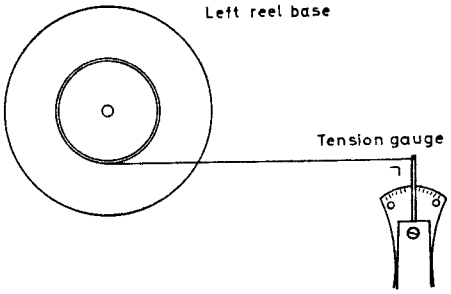


Fig. 5

3. Tension of the motor slip pulley
   The motor slip pulley is driven by a belt from the motor pulley. (See exploded view.)
   * Tie a piece of string to the staged, protruding part of the slip ring L7 (Fig. 6), then connect tension gauge. Put on a tape and run it in the reverse direction. Hold the slip ring with the tension gauge attached and read it at the moment it stops turning in the direction of the arrow.
   * Suitable tension is between 40 and 60 gr.
   * If it is outside this range, it will adversely affect the slip motion timing of the micro switch or cause it to function when it should not.
   * Change the motor slip ring (L7) or adjust the coil spring (19).

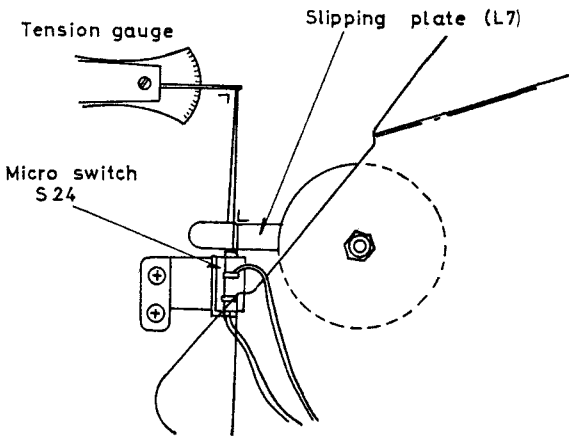


Fig. 6

III. Various Pressures

1. Pinch roller pressure
   * Tie a string onto the pinch roller shaft as shown in figure 7.
   * Turn on the power and pull the string with a spring scale. Read the number when the roller stops turning.
   * Suitable pressure is from 1 to 1.5k gr.

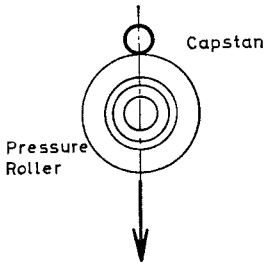


Fig. 7

2. FWD roller pressure
   Measure both left and right FWD rollers. The figure 8 shows only the left FWD roller because they are both the same. Move the roller lever in the direction of the arrow by pushing with a spring scale on one edge. Read the pressure when the roller separates from the left reel base.
   * Normal pressure is 600 - 1000 gr.
   * Adjustment is done with the coil spring (J26) and link (J24 or J25).

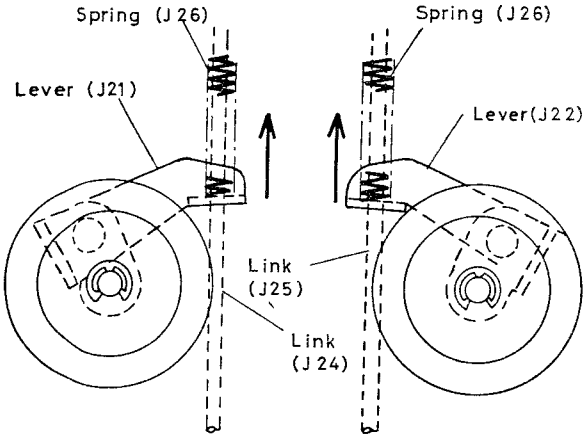


Fig. 8

3. Left and right idler adjustment
   * Pull the PLAY pressure idler as shown in figure 9. Examine the left idler pressure when the unit is set for ordinary winding to the right; examine the right idler pressure when it is set to run to the left.
   * Proper pressure for both idlers is 250±30 gr.
   * If the pressure is not within this range, change the idler pressure spring (J11).

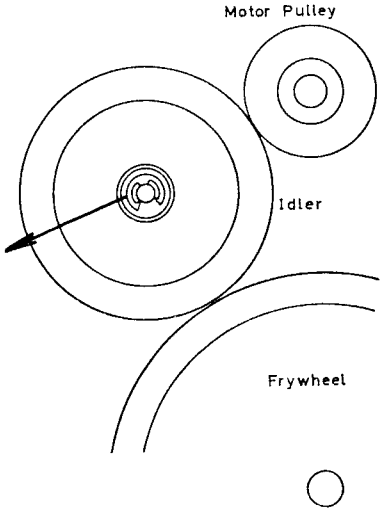


Fig. 9

ELECTRICAL ADJUSTMENTS

I. Bias Oscillator Frequency

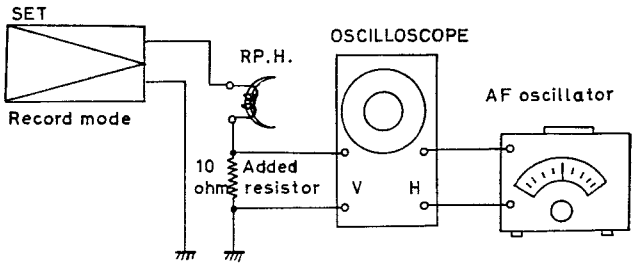


Fig. 10

As shown in figure above, connect a 10 ohm resistor in series with the ground lead wire of the Record/Playback head.
Connect the vertical input of the oscilloscope across this resistor; connect the horizontal input of the oscilloscope to the output terminal of the Audio Frequency Oscillator (A.F. Oscillator). With this unit set to RECORD mode and connected as above, a lissajous figure will appear on the oscilloscope.
Standard frequency is 80K Hz ±5k Hz.
It is only necessary to measure one channel. If the frequency is not within the above range, change OSC coil or C102 (0.003 mfd.).
Bias current 1.0 mA.
Proper bias is necessary for optimum recording. Adjust the bias oscillator frequency as described above. Bias current during the recording is measured at both ends of the connected resistors. Adjustment is made by the semifixed CT-1, CT-2, so the voltage will be 10 mV on an AC VTVM.
Recording bias current is 1.0 mA (voltage across the 10 ohm resistor: $1.0\ \text{mA} \times 10^{-3} \times 10 = 0.01$ V).

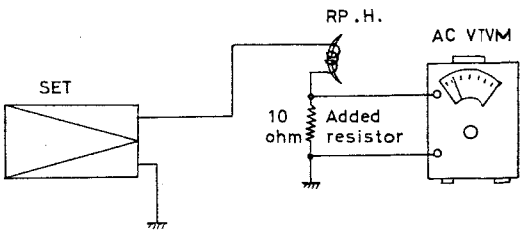


Fig. 11

II. Gain Balance Adjustment

1. Connect an audio signal generator to the MIC jack of channel 2 and feed lk Hz 0.4 mV signal. Use an attenuator as shown below.

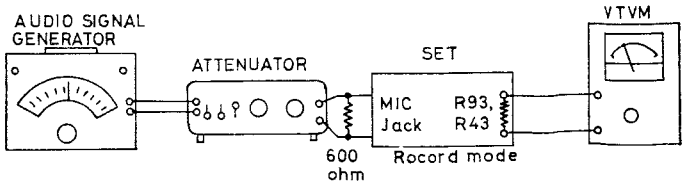


Fig. 12

2. Operate the unit in Record position.
3. Connect the VTVM across R93.
4. Read the VTVM indication.
5. Reconnect an audio signal generator to the MIC jack of channel 1 and feed lk Hz 0.4 mV signal.
6. Reconnect the VTVM across R43.
7. Adjust SVR-1 for the same VTVM readings on channels 1 and 2.

III. Recording Level Indicator

This adjustment must be mode after Gain Balance adjustment.

1. Using an audio signal generator, feed 1k Hz 0.4 mV signal to the MIC jack of channel 1.
2. Operate the unit in Record position.
3. While observing the meter, adjust SVR-2 so that the needle of the left VU meter points to the border between the red and black zones.
4. Reconnect the audio generator to the MIC jack of channel 2 and make the same adjustment for SVR-3.

HEAD ADJUSTMENT

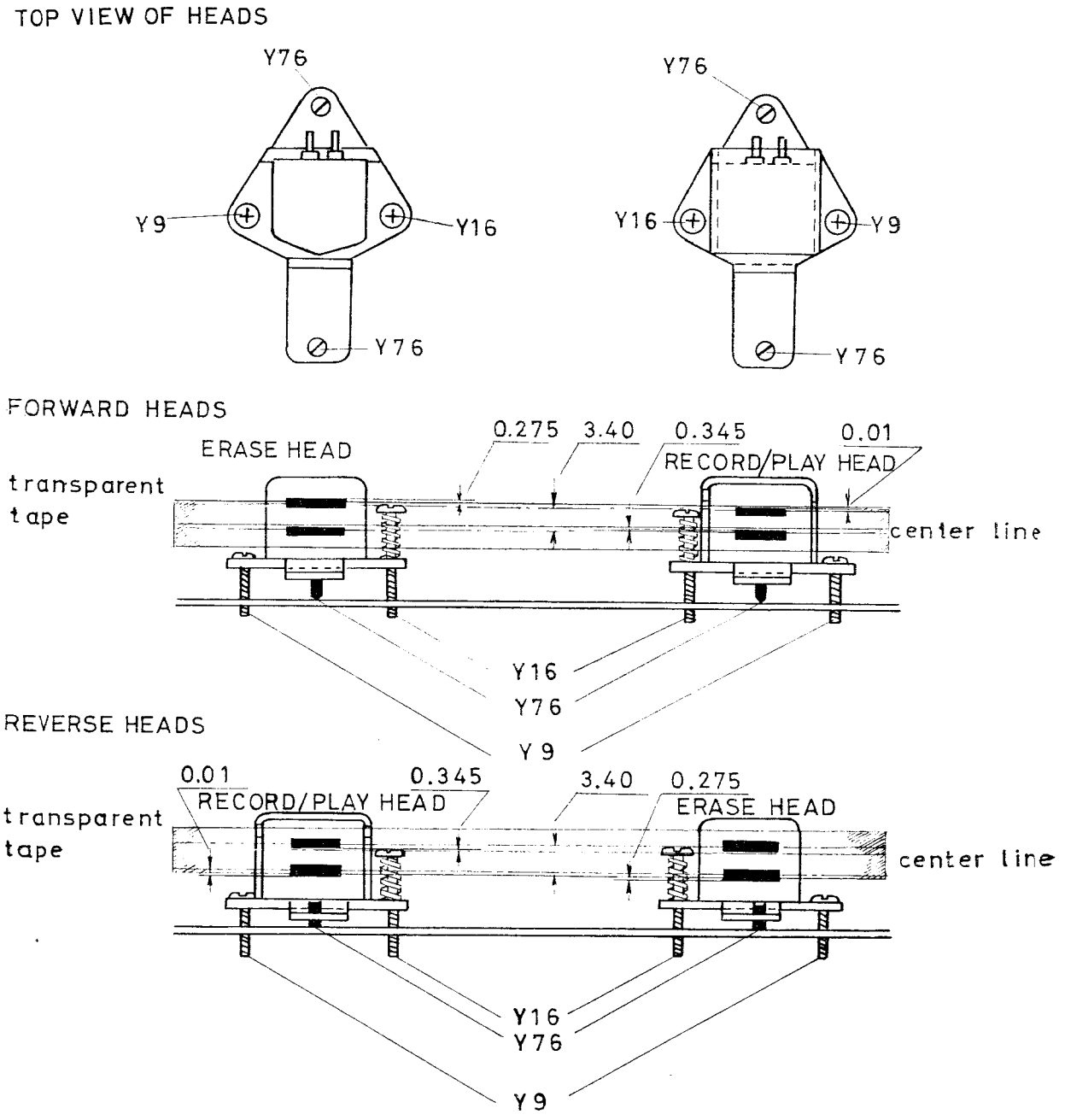
Vertical positioning

The height of the Record/Play head has been carefully adjusted at the factory. Therefore, no further adjustment should be required.

Azimuth positioning

Record/Play head azimuth has been correctly adjusted at the factory and should not require further attention unless the head has been replaced. Therefore, if the original head is replaced, use the following procedure to align head azimuth (see Figure 13).

1. Load a special 12k Hz azimuth alignment tape on the Left reel base.
2. Turn Tone controls to maximum position. Connect a VTVM across either R43 or R93.
3. Shift the Speaker selector switch to its OFF position.
4. Turn the unit on. Depress Play button and turn up the Volume control of the channel being measured until its pointer is at the boundary of the black and red areas on the VU meter.
   Very slowly turn the azimuth adjustment screw (ref. No. ¥76) until maximum reading is obtained; this will be indicated by the meter deflection reaching a maximum, after which it will decrease as the screw is continuously turned in the same direction. If the meter reading returns to mid-scale position. It is not neccessary to repeat the adjustment procedure for the other channel since azimuth agreement between left and right channels is held to close tolerances.



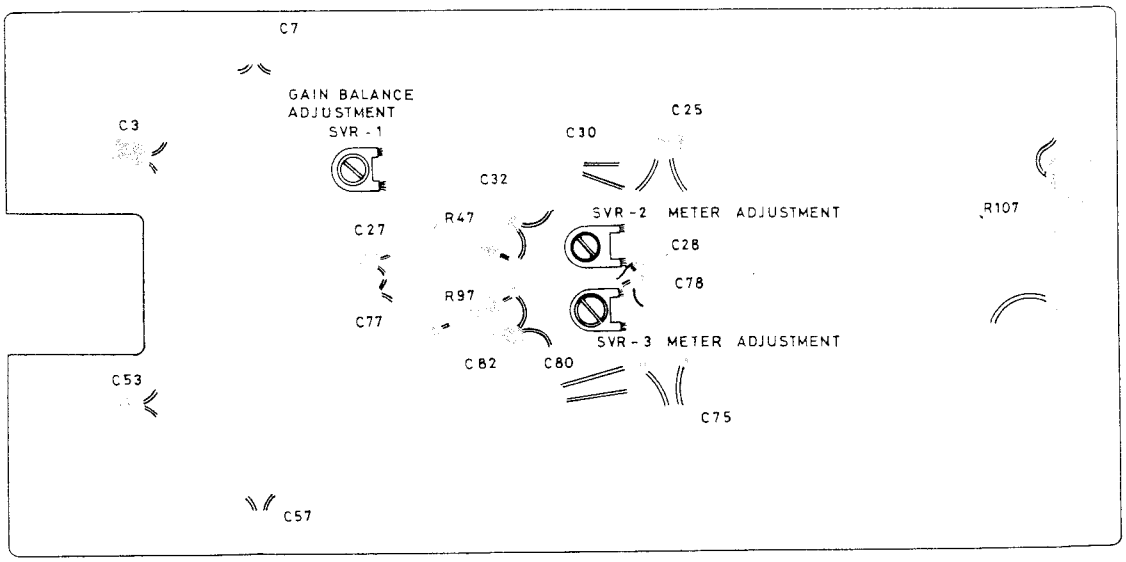
TROUBLE SHOOTING CHART (Electric circuit)

Symptoms	Causes	Corrections
No playback (using recorded tape). Weak playback Output power (using recorded tape).	1. Faulty amplifier power source circuitry. 2. Disconnected or short in RP head. 3. Misconnected RP change slide switch, or the set is in recording condition. 4. Faulty speaker, speaker cord or connecting jack. 5. Tape oxide deposit and dust on the RP head. 6. Faulty connection of tape and head surface, and faulty pad pressure. 7. Magnetized head. 8. Faulty head position or worn head.	1. Examine, using wiring diagram. 2. Replace. 3. Replace RP change slide switch or adjust spring and mechanism. 4. Examine. Replace if necessary. 5. Clean head (at the same time clean the pinch roller). 6. Examine tape position and pressures. 7. Demagnetize. 8. Confirm, readjust or replace.
Impossible to record or insufficient recording volume (playback normal).	1. Oscillation circuit not functioning. 2. Faulty connection or movement of recording/playback slide switch. 3. Faulty input jack and shield wire, or faulty connection. 4. Faulty Mic. or input recording cord, or faulty connection. 5. Short in erase head.	1. Examine, using wiring diagram; replace faulty part. 2. Examine the switch and RP change lever, adjust the mechanism and replace faulty parts. 3. Examine, repair. 4. Examine. repair. 5. Replace.
Faulty or non-existent erasing.	1. Disconnection or faulty connection of erase head. 2. Tape oxide dust on erase head. 3. Misconnected circuit before erase head, especially connecting part. 4. Oscillation circuit does not function,	1. Connect. 2. Clean head. 3. Examine, repair and solder; follow the wiring diagram. 4. Examine, using diagram.
Loud hum (VR at minimum).	1. Faulty transistors after VR. 2. Lowered filter capacity or misconnection. 3. Faulty lead cord connection.	1. Replace. 2. Replace. 3. Replace lead cord.
Loud hum (VR at maximum).	1. Ground lead is touching head part. The hum can come from any point where the earth lead is touching. 2. Faulty or misconnected lead cord. 3. Faulty driver transistors. 4. Filter capacity leak or disconnection.	1. Examine each ground terminal and lead cord connection point, other points in contact with ground lead. 2. Examine and change lead cord. 3. Replace. 4. Replace.
Hum when connected with stereo.	1. Earth cord touching points in addition to amp. and stereo ground terminals.	1. Examine ground cord touching points.
Too noise.	1. Faulty volume contact, 2. Faulty transistors (especially first stage). 3. Weak circuit element faulty soldered contact to adjacent element. 4. Head magnetized. 5. Distortion of bias oscillation wave.	1. Replace. 2. Locate faulty transistors and replace. 3. Examine, using wiring diagram. 4. Demagnetize. 5. Examine and adjust circuit element.
Faulty sound.	1. Faulty circuit element and transistors. 2. Poor high frequency bias. 3. Faulty tape-head setting. 4. Worn out head. 5. Faulty microphone or speaker. 6. Faulty pad pressure.	1. Examine, using wiring diagram. 2. Readjust according to adjustment chart. 3. Check tape setting and clean it. 4. Replace. 5. Replace. 6. Check and adjust.
Fault treble tone.	1. Faulty vertical alignment of head. 2. Faulty pad pressure.	1. Correct by adjusting method. 2. Check and adjust.
Cross-talk.	1. Faulty top and bottom position of head. 2. Faulty tape guide position.	1. Correct by adjusting method. 2. Readjust position of tape guide.
Output power varies (channel-channel).	1. Amplification too small. 2. Amplification too large.	1. Adjust recording level. 2. Adjust gain balance.
No movement of VU meter.	1. Broken VU meter. 2. Faulty VU meter adjustment. 3. Broken wiring for meter or recording playback change switch.	1. Replace. 2. Readjust. 3. Examine and replace.

TROUBLE SHOOTING CHART (Mechanism)

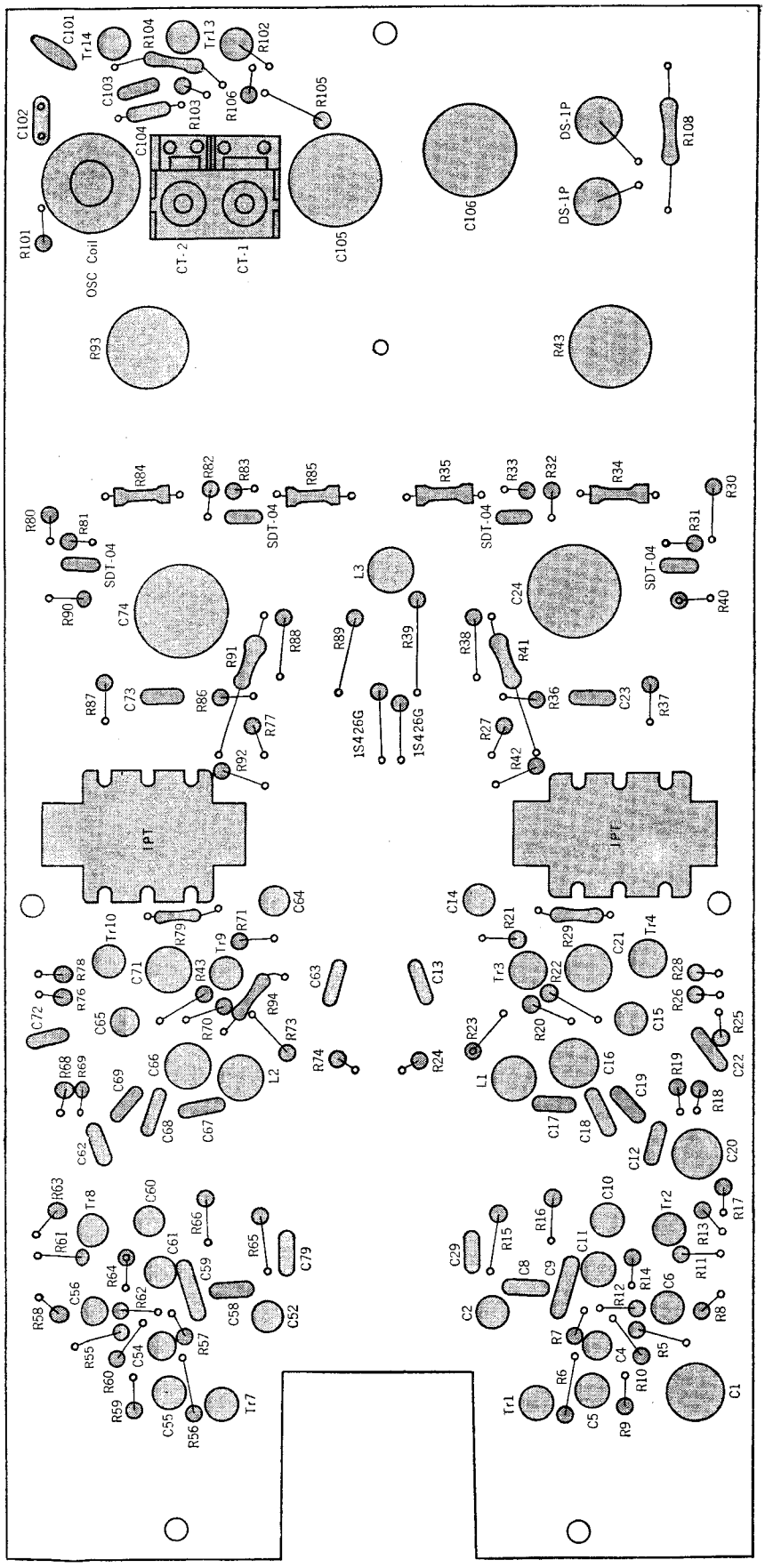
Symptoms	Causes	Corrections
Capstan does not turn.	1. Disconnected motor coil. 2. Faulty starting capacitor C 110. 3. Burned metals. 4. Motor pulley slipping. 5. Faulty idler pressure. 6. Oil on idler, motor pulley or flywheel. 7. Insufficient oil for idler of flywheel.	1. Replace. 2. Replace. 3. Oil or replace. 4. Tighten. 5. Adjust or replace pressure spring. 6. Clean with carbon tetrachloridg or alcohol. 7. Oil axles.
Slow rotation.	1. Heavy motor revolution. 2. Starting capacitor leak. 3. Oil on idler, motor pulley or flywheel. 4. Insufficient oil for idler of flywheel.	1. Oil or replace, for easier turning. 2. Confirm and replace. 3. Clean with carbon tetrachloride or alcohol. 4. Oil.
Wow, flutter.	1. Insufficient motor torque. 2. Slipping motor pulley. 3. Faulty idler pressure. 4. Oil on idler, motor pulley or flywheel. 5. Insufficient oil for idler or flywheel. 6. Insufficient oil for both spindles or faulty felt. 7. Insufficient pressure of pinch roller. 8. Irregular pinch roller rubber. 9. Dust on head surface. 10. Dust on head pad or faulty pressure. 11. Dust on tape guide.	1. Replace starting capacitor. 2. Tighten fising nuts. 3. Adjust and replace pressure spring. 4. Clean with carbon tetrachloride or alcohol. 5. Oil 6. Oil, replace felt. 7. Check and adjust. 8. Replace. 9. Clean with carbon tetrachloride or alcohol. 10. Same as above, or adjust pressure. 11. Same as 9.
Faulty fast forward (▶▶,◀◀).	1. Insufficient oil for both reel axles. 2. Faulty fast forward roller (left and right) pressure or poor matching with reel base height. 3. Oil on spindle, roller and idler. 4. Insufficient oil for fast forward roller.	1. Oil. 2. Check and adjust. 3. Clean with carbon tetrashloride or alcohol. 4. Oil.
Loud noise.	1. Excessive starting capacitor. 2. Loose motor pulley fixing nut. 3. Faulty motor pulley top and bottom position. 4. Noise in the motor itself. 5. Insufficient oil for roller or idler. 6. Insufficient oil for spindle pulley.	1. Replace capacitor. 2. Tighten. 3. Adjust. 4. Replace. 5. Oil. 6. Oil.
Impossible to rewind tape.	1. Reel axle not perpendicular to chassis surface. 2. Variation in top and bottom pressure of pinch roller on capstan, or distorted pinch roller rubber. 3. Improper feed reel back tension.	1. Adjust. 2. Replace pinch roller. 3. Oil spindle, replace spindle felt and back tension lever shoe.

MAIN PARTS LOCATION

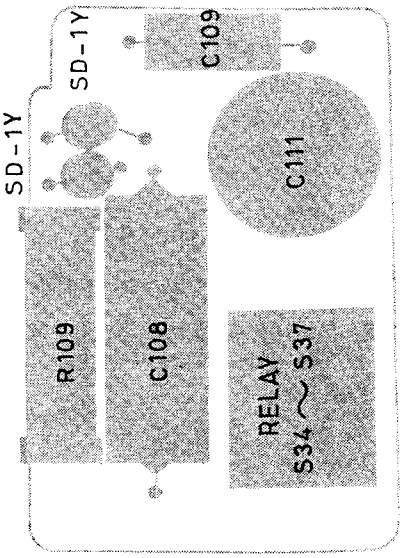


Amplifier Board (Foil Side)

MAIN PARTS LOCATION



Amplifier Board (Parts Side)



Reverse Board

PARTS LIST

Parts No.	Description	Q'ty
CABINET		
R-S98050a	-Cabinet complete	1
R-468067	-Cabinet, trunk only	1
R-478214	-Sheet, schematic diagram	1
R-268392	-Model No. plate	1
R-32672a	-Louver, motor	1
	-Screw, RH wood 4ø × 8	4
R-438003a	-Sheet	3
R-44067	-Leg	8
	-Screw, RH wood 3.1ø × 13	8
	-B-washer 3ø	8
R-112857a	-Reinforcing metal, cabinet	4
	-Screw, RH wood 3.1ø × 8	16
	-Felt, 3t × 6 × 195	2
	-Felt, 3t × 6 × 75	2
R-S88099	-Compartment lid complete	1
	-Screw, OH wood 3.1ø × 8	3
R-118203	-Bracket, lid mtg.	1
	-Screw, FH wood 2.4 × 8	3
	-RH nail	4
R-S88241	-Handle complete	1
R-24887a	-Handle holder	2
R-118588a	-Reinforcing metal, handle	1
	-Polyethylene washer 8ø × 11ø × 0.5t	2
	-B-washer 4ø	2
	-Spring washer 4ø	2
	-Nut 4ø	2
R-268383	-Ornament metal, jack window	1
	-RH nail 1ø × 8	6
R-S88307	-Hinge, near left	1
R-S88308a	-Hinge, left	1
R-S88309	-Hinge, near right	1
R-S88310a	-Hinge, right	1
	-Screw, PH 3ø × 8	8
	-B-washer 3.3ø × 10ø × 1t	8
R-238037	-Hook-up metal, lock hinge	2
	-Screw, OH wood 3.1ø × 10	4
R-118918a	-Reinforcing metal, cabinet	2
	-Screw, RH wood 2.7ø × 10	4
	-Spring washer 2.6ø	4
R-448114	-Rubber cushion, thin	2
R-448115	-Rubber cushion, thick	4
SPEAKER BOX (LEFT)		
R-S98051	-Speaker box (Left)	1
R-468063	-Speaker box, wooden trunk	1
R-468062	-Back panel	1
R-468065	-Speaker mounting board	1
R-278121	-Ornament metal (both side)	2
R-278120	-Ornament metal (upper & lower)	2
R-368053	-Cover, accessories compartment	1
	-Special screw, speaker mtg.	6
	-Special screw, board mtg.	4
R-S88303	-Badge for SANYO	1
R-S88082	-Lock hinge	1
R-23804	-Hinge	2
R-S6857	-Speaker	1
R-S8942	-Speaker cord	1
R-44067	-Leg	6
R-112432	-Lug, lead clamp	1
	-Nut 3ø	12
	-Screw, RH wood 3.1ø × 10	12
	-Screw, RH wood 3.1ø × 13	4
	-Screw, RH wood 3.1ø × 16	8
	-S-washer 3ø × 6ø × 0.5t	8
	-B-washer 3ø × 10ø × 0.5t	10
	-B-washer 4ø × 10ø × 0.8t	6
	-B-washer 6ø × 20ø × 1t	1
	-S-washer 3ø	10
	-Screw, BH 3ø × 10	2
	-Screw, OH 3ø × 10	4
	-Screw, FH 3ø × 6	16
R-288054	-Angle, ornament metal joint	4
SPEAKER BOX (RIGHT)		
R-S98052	-Speaker box (Right)	1
R-468064	-Speaker box wooden trunk	1
R-468062	-Back panel	1
R-468065	-Speaker mounting board	1
R-278120	-Ornament metal (upper & lower)	2
R-278121	-Ornament metal (both side)	2

Parts No.	Description	Q'ty
SPEAKER BOX (RIGHT)		
R-368053	-Cover, accessories compartment	1
	-Special screw, speaker mtg.	6
	-Special screw, board mtg.	4
R-S88303	-Badge for SANYO	1
R-S88082	-Lock hinge	1
R-238016	-Hinge	2
R-S6857	-Speaker	1
R-S8942	-Speaker cord	1
R-44067	-Leg	6
R-112432	-Lug, lead clamp	1
	-Nut 3ø	12
	-Screw, RH wood 3.1ø × 10	12
	-Screw, RH wood 3.1ø × 13	4
	-Screw, RH wood 3.1ø × 16	8
	-S-washer 3ø × 6ø × 0.5t	8
	-B-washer 3ø × 10ø × 0.5t	10
	-B-washer 4ø × 10ø × 0.8t	6
	-B-washer 6ø × 20ø × 1t	1
	-S-washer 3ø	10
	-Screw, BH 3ø × 10	2
	-Screw, OH 3ø × 10	4
	-Screw, FH 3ø × 6	16
R-288054	-Angle, ornament metal joint	4
FUNCTION PANEL		
R-AT16901	-Reel panel assembly	1
R-118803	-Reel panel	1
R-318166	-Decoration ring	2
R-AT16902	-Control panel assembly, VR, TONE	1
R-278122	-Control panel	1
R-268612	-Stoper	1
R-AT16903	-Console panel assembly, Function button	1
R-278123	-Console panel	1
R-268463	-Frame, button under	1
R-318160	-Cover, tape counter	1
R-328090	-Trim, speed selecter	1
	-Felt 10 × 10 × 0.5t	2
R-318156	-Trim, button	1
R-268388	-Panel, button indicater	1
R-278117	Frame, panel, right & Left	2
R-278118	Frame, panel, top	1
R-278119	Frame, panel, bottom	1
R-118988	Angle, frame mtg.	1
R-118814	Plate nut, angle	6
R-128032	Tape guide	2
R-248176	Post, cover and head housing	4
R-288036	Angle, frame mtg.	4
R-S88313	Volume and tone knob	4
R-248130	Speed selector knob	1
R-S88314	Head housing	1
R-S88371	Cover, direction lamp	1
R-368052	Cover, speed selector knob	1
R-118346	Special washer, cabinet	6
R-448124	Rubber cushion	6
R-24889	Special ring, panel mtg.	6
	Vinyl washer 3.3ø × 6.5ø × 0.5t	6

PARTS LIST

Ref. No.	Parts. No.	Description	Q'ty
FLYWHEEL AND PLAY MECHANISM			
F1	R-118762	Board, Head and plunger Mtg.	1
F2	R-148218	Pouch nut, Board Mtg.	5
R3	R-118763	Lever, Reverse	1
F4	R-S88365	Slide, Idler (J1) drive, Left	1
F5	R-S88364	Slide, Idler (J1) drive, Right	1
F6	R-S4858	Plunger, Reverse change	1
F7	R-248260	Spacer, Plunger connecting	1
F8	R-158181	Spring, Slide (F4, 5) tension	1
F9	R-118813	Plunger stopper	1
F10	R-418105a	Printed circuit board, Head	1
F11	R-148220	Pin, Slide switch hook	1
F12	R-118966a	Slide switch stopper	1
F13	R-112432	Lug plate	3
F14	R-118789	Bracket, Micro-switch S39	1
F15	R-258066	Plate spring, Frywheel base	1
F16	R-118752	Lever, Forward pads actuating	1
F17	R-118753	Lever, Reverse pads actuating	1
F18	R-24697	Spacer, Lever (F16,17)	2
F19	R-158177	Spring, Lever (F16, 17) tension	1
F20	R-248343	Ring, Reverse slide Mtg.	4
F21	R-148314	Spacer, Reverse slide Mtg.	4
F22	R-H12901	Rubber ring 18ø × 32ø × 1t	1
F23	R-118768a	Lever, Pressure roller	1
F24	R-148224	Shaft, Lever (F23)	1
F25	R-128124	Shaft, Pressure roller	1
F26	R-118755	Slide, Pads release	1
F27	R-AM12901	Pressure roller	1
F28	R-S88299	Flywheel	1
F29	R-241105	Bearing, Flywheel	1
F30	R-112603	Bearing holder	1
F31	R-23797	Cap, Capstan shaft	1
F32	R-Y554000	Steel ball, Flywheel	1
FUNCTION BUTTON & RECORD MECHANISM			
G1	R-S88359a	Button locking slide, Upper	1
G2	R-118770	Button locking slide, Middle	1
G3	R-118771a	Button locking slide, Lower	1
G4	R-118783	Bracket, Slides, Left	1
G5	R-118784	Bracket, Slides, Right	1
G6	R-158147	Spring, Slides returning	3
G7	R-118778	Lever, Button	6
G8	R-158183	Spring, Lever (G7, 12) returning	7
G9	R-158216	Spring, EDIT button locking	1
G10	R-118807	Bracket, Lever (G7, 12) Mtg.	2
G11	R-148228	Shaft, Lever (G7, 12)	1
G12	R-118779a	Lever, EDIT button	1
G13	R-118825	Recording lever, Left	1
G14	R-118828	Recording lever, Right	1
G15	R-138019	Spring used with G20	2
G16	R-118822	Bracket, Lever (G13, 14)	1
G17	R-118826	Lever, Record actuating, Right	1
G18	R-118827	Lever, Record actuating, Left	1
G19	R-118823	Bracket, Lever (G17, 18)	1
G20	R-278183	Shaft, Lever linking	2
G21	R-148316	Boss, Lever linking	2
G22	R-248345	Spacer, Lever (G13, 14, 17, 18)	2
G23	R-AM12902	Function button	7
G24	R-118781	Looking plate, EDIT Button	1
G25	R-112651	Washer, record lever	1
HEADS SYSTEM			
H1	R-158178	Spring, Head adjustment	4
H2	R-238034	Hinge, Pads open and close	2
H3	R-AM12903	Pad, Left side	2
H4	R-AM12904	Pad, Right side	2
H5	R-128130	Shaft, Respective tape pads	2
H6	R-128132	Spring, Pad pressure, Left	2
H7	R-128133	Spring, Pad pressure, Right	2
H8	R-118766	Board, Forward heads	1
H9	R-118767	Board, Reverse heads	1
H10	R-128122	Tape guide with thread	2
H11	R-S88369	Slide, Pads actuating	2
H12	R-148122	Spacer, used with slide (H11)	2
H13	R-128123	Tape guide, with hole	2
H14	R-348063	Bakelite spacer	4
H15	R-348064	Bakelite spacer	2
H16	R-S88363	Plate, Reverse detection (Left)	1
H17	R-S88362	Plate, Forward detection (Right)	1
H18	R-S3008	Tag	2
H19	R-44027	Rubber bushing, derection lamp	2
H20	R-S1202(4)	Direction lamp, Left	1
H21	R-S1202(5)	Direction lamp, Right	1

Ref. No.	Parts No.	Description	Q'ty
OPERATION MECHANISM			
J1	R-AM0701	Idler, Flywheel and Reel Base	2
J2	R-148211a	Spindle, Idler	2
J3	R-148212	Sleeve, Shaft (J3)	2
J4	R-148213	Pipe, Shaft (J3)	2
J5	R-248259	Spacer, Lever (J8, 9)	2
J6	R-118740	Slide, Idler pressing (Left)	1
J7	R-118741	Slide, Idler pressing (Right)	1
J8	R-S88368	Lever, Idler pressing (Left)	1
J9	R-S88367	Lever, Idler pressing (Right)	1
J10	R-248258	Spacer, Slide (J6, 7)	2
J11	R-158173a	Spring, Idler pressing	2
J12	R-118744	Bracket, Lever and slide	2
J13	R-128121	Shaft, Lever (J8, 9)	2
J14	R-118805	Lever, Idler returning (Left)	1
J15	R-118806	Lever, Idler returning (Right)	1
J16	R-158174	Spring, Idler pressing	1
J17	R-248260	Spacer, Lever (J14, 15)	3
J18	R-S88366	Play slide	1
J19	R-AM12906	Roller, Rewind and F. Forward	2
J20	R-148210	Shaft, Roller (J19)	2
J21	R-118738	Lever, Fast rewind	1
J22	R-118739	Lever, Fast forward	1
J23	R-148210	Shaft, Lever (J21, 22)	2
J24	R-158159d	Link, Connected to lever (J21)	1
J25	R-158162b	Link, Connected to lever (J22)	1
J26	R-153172	Spring, used with link (J24, 25)	2
J27	R-248086	Boss, used with link (J24, 25)	4
J28	R-AM12907	Brake lever (Left)	1
J29	R-AM12908	Brake lever (Right)	1
J30	R-148225	Shaft, Brake lever	2
J31	R-158180	Spring, Brake adjustment	2
J32	R-S88361	Lever, Brake actuating (Left)	1
J33	R-S88360	Lever, Brake actuating (Right)	1
J34	R-24697	Spacer, Lever (J32, 33)	2
J35	R-158158a	Link, Brake actuating	1
J36	R-158182	Spring, used with link (J36)	1
J37	R-118761	Link holder plate	1
J38	R-248086	Boss, used w th link (J36)	1
J39	R-158160	Link, Unlocking EDIT knob	1
J40	R-118780	Lever, Unlocking EDIT knob	1
J41	R-24671a	Spacer, Lever (J40, J42)	2
J42	R-S88372a	Lever, Pressure lever actuating	1
J43	R-158179	Spring, Lever (J42)	1
J44	R-148170	Special screw, Lever (42)	1
J45	R-158021	Spring, Lever (J42) detent	1
J46	R-148261	Pole, Spring (J45) hook	1
J47	R-AM12909	Lever, Flywheel brake	1
J48	R-148232	Shaft, Lever (J47)	1
J49	R-158176	Spring, Lever (J47) pressure	1
J50	R-158161a	Link, Lever (J42) actuating	1
J51	R-Y552000	Steel ball, used with (J6, 7, 8 and 9)	8
J52	R-S58041	Idler bearing cap	2

PARTS LIST

Ref. No.	Parts No.	Description	Q'ty
SPEED SELECTOR & AUTOMATIC STOPPER			
K1	R-148216	Lever, Speed select control	1
K2	R-15178	Spring, used with lever (K1)	1
K3	R-14115	Pin, used with lever (K1)	1
K4	R-118747	Stepped arm, Lever (K1)	1
K5	R-158175	Spring, Arm (K4) pressure	1
K6	R-248260	Spacer, Arm (K4) Mtg.	1
K7	R-118748	Lever, Slide (K8) actuating	1
K8	R-118749	Slide, Idler (J1) shifting	1
K9	R-148217	Connection pin, (K9, 10, 13)	1
K10	R-24671a	Spacer, (K8, 11) Mtg.	2
K11	R-118750a	Slide, Situation hold	1
K12	R-248258	Spacer, Slide (K11) Mtg.	2
K13	R-S88470	Arm, Speed compensation SW drive	1
K14	R-118837	Bracket, Speed compensation SW	1
K15	R-128126b	Lever, Tape running sense	1
K16	R-128127	Shaft, Lever (K15) Mtg.	1
K17	R-118756	Bracket, Micro switch S24	1
K18	R-118777	Lever, Slide (G1, 2, 3) returning	1
K19	R-S88375a	Plunger, Slide returning	1
K20	R-368052	Cover, Speed selector knob	1
MOTOR			
L1	R-S5178b	AC motor	1
L2	R-S88374	Fan, Motor cooling	1
L3	R-118773	Board, Motor mounting	1
L4	R-112833	Shield, Motor	1
L5	R-248388	Motor pulley	1
L6	R-148108	Bolt, Motor pulley Mtg.	1
L7	R-AM12910	Slipping plate, Micro switch	1
L8	R-AM12911	Pulley, Micro switch actuating	1
L9	R-158169	Coil spring, Slipping plate	1
L10	R-148257	Shaft, Pulley and slipping plate	1
L11	R-448087	Belt, Slipping pulley drive	1
L12	R-118908	Bracket, Micro SW Mtg.	1
L13	R-248389	Pulley belt drive	1
MECHANISM CHASSIS			
M1	R-AM12912	Mechanism main chassis	1
M2	R-S88306	Chassis leg, Bottom right	1
M3	R-118831	Chassis leg	2
M4	R-S88373	Chassis leg, Top left	1
M5	R-118819	Bracket, Function panel Mtg.	2
M6	R-118821	Bracket, Function panel Mtg.	1
M7	R-118820	Bracket, Function panel Mtg.	1
M8	R-118834	Bracket, Function panel Mtg.	1
M9	R-118840	Chassis, Amplifier mounting	1
M10	R-118190a	Reinforcing metal, Chassis (M9)	1
M11	R-318162	Mounting base, Headphone jack	1
M12	R-S2131	Headphone jack	1
M13	R-268447	Heat sink, Power transistors	1
M14	R-S5818	VU meter	1
M15	R-118844a	Bracket, VU meter	1
M16	R-368027	Tube, Pilot lamp	1
M17	R-S5044	Pilot lamp, VU meter illumination	1
M18	R-118861	Bracket, Pilot lamp	1
M19	R-44027	Rubber bushing, Pilot lamp	1
M20	R-S2858	Socket, Pilot lamp	1
M21	R-418110	Sponge cushion, VU meter	1
M22	R-118181	Reinforcing metal, Chassis	1
RESPECTIVE REEL PLATE			
N1	R-AM12913	Reel plate	2
N2	R-AM12914	Pulley, Fast forward	2
N3	R-158170	Spring, Pulley (N2) pressure	2
N4	R-118736	Spring bearing	2
N5	R-AM12915	Pulley, Slipping	2
N6	R-AM12916	Pulley, Playback	2
N7	R-258076a	Plate spring, Pulley pressure	2
N8	R-348062	Pulley, Counter drive	2
N9	R-148208a	Shaft, Reel plate	2
N10	R-AM12917	Lever, Back tension, Left	1
N11	R-AM12918	Lever, Back tension, Right	1
N12	R-148239	Shaft, Lever (N10, 11)	2
N13	R-158215	Spring, Lever (N10, 11) pressure	2
N14	R-448040a	Belt, Counter drive	1
REVERSE MECHANISM			
P1	R-148782	Board, Reverse controls	1
P2	R-148218	Pouch nut, Board Mtg.	3

Ref. No.	Parts No.	Description	Q'ty
REVERSE MECHANISM			
P3	R-118788	Interlock slide, DERECTION (L)	1
P4	R-118812	Interlock slide, DERECTION (R)	1
P5	R-158147	Spring, Interlock slide	2
P6	R-118787	Interlock slide holder	1
P7	R-348077	Lug plate	1
P8	R-118802	Bracket, Printed circuit board	3
P9	R-44238	Rubber cushion	3
P10	R-328091	Button, REVERSE	2
TAPE COUNTER			
T1	R-S5810	Tape counter	1
T2	R-118800	Bracket, Tape counter Mtg.	1
T3	R-448066a	Rubber tube, Counter drive	1
T4	R-S3007	Lug plate, Fuse Mtg.	1
T5	R-448027	Rubber ring, Bearing	2
T6	R-241283b	Bearing, Counter pulley	2
T7	R-128129	Shaft, Counter pulley (T8)	1
T8	R-398122	Pulley, Counter drive	3
T9	R-448003a	Belt, Counter drive	1
T10	R-G05106	Circular nut, CS-8	2
T11	R-14217a	Shaft, Middle pulleys	1
MOUNTING PARTS			
Y1	R-Y012006	Pan head screw 2 × 6mm	6
Y2	R-Y012606	〃 2.6 × 6mm	2
Y3	R-Y012610	〃 2.6 × 10mm	1
Y4	R-Y012612	〃 2.6 × 12mm	4
Y5	R-Y012614	〃 2.6 × 14mm	2
Y6	R-Y012618	〃 2.6 × 18mm	2
Y7	R-Y012624	〃 2.6 × 24mm	2
Y8	R-Y013004	〃 3 × 4mm	15
Y9	R-Y013006	〃 3 × 6mm	72
Y10	R-Y013008	〃 3 × 8mm	52
Y11	R-Y013010	〃 3 × 10mm	3
Y12	R-Y013012	〃 3 × 12mm	16
Y13	R-Y013014	〃 3 × 14mm	4
Y14	R-Y013016	〃 3 × 16mm	2
Y15	R-Y013020	〃 3 × 20mm	2
Y16	R-Y013024	〃 3 × 24mm	4
Y17	R-Y014008	〃 4 × 8mm	22
Y18	R-Y014010	〃 4 × 10mm	7
Y19	R-Y014012	〃 4 × 12mm	1
Y20	R-Y014020	〃 4 × 20mm	7
Y21	R-Y014030	〃 4 × 30mm	1
Y22	R-Y063055	Round head screw 3 × 55mm	2
Y23	R-Y023006	Disk head screw 3 × 6mm	1
Y24	R-Y023008	〃 3 × 8mm	22
Y25	R-Y053006	Binder screw 3 × 6mm	18
Y26	R-Y033006	Round counter sunk screw 3 × 8mm	6
Y27	R-Y113008	Pan head self tapping 3 × 6mm	4
Y28	R-Y113008	〃 3 × 8mm	1
Y29	R-Y332000	Spring washer, 2mm	4
Y30	R-Y332600	Spring washer, 2.6mm	13
Y31	R-Y333000	Spring washer, 3mm	175
Y32	R-Y334000	Spring washer, 4mm	64
Y33	R-Y335000	Spring washer, 5mm	2
Y34	R-Y232000	Nut, 2mm	4
Y35	R-Y232600	Nut, 2.6mm	5
Y36	R-Y233000	Nut, 3mm	31
Y37	R-Y234000	Nut, 4mm	30
Y38	R-Y235000	Nut, 5mm	2
Y39	R-Y352000	External "E" ring 2mm	1
Y40	R-Y352600	〃 2.6mm	1
Y41	R-Y353000	〃 3mm	1
Y42	R-Y354000	〃 4mm	3
Y43	R-Y355000	〃 5mm	3
Y44	R-Y356000	〃 6mm	11
Y45	R-Y357000	〃 7mm	1
Y46	R-Y358000	〃 8mm	1
Y47	R-Y3510000	〃 10mm	4
Y48	R-Y322600	Washer, 2.6mm	5
Y49	R-Y323000	〃 3mm	14
Y50	R-Y3226805	〃 2.6 × 8 × 0.5t	4
Y51	R-Y3230805	〃 3 × 8 × 0.5t	16
Y52	R-Y32308010	〃 3 × 8 × 1t	3
Y53	R-Y32301005	〃 3 × 10 × 0.5t	3
Y54	R-Y323010010	〃 3 × 10 × 1t	15
Y55	R-Y323013010	〃 3 × 13 × 1t	5
Y57	R-Y324010010	〃 4 × 10 × 1t	1
Y58	R-Y324013012	〃 4 × 13 × 1.2t	11
Y59	R-Y326013010	〃 6 × 13 × 1t	1

PARTS LIST

Ref. No.	Parts No.	Description	Q'ty
MOUNTING PARTS			
Y61	R-Y327012010	Washer, 7 × 12 × 1t	1
Y62	R-Y3210218010	〃 10.2 × 18 × 1t	2
Y63	R-Y54250B	Polyethylene washer, 2.5mm	2
Y64	R-Y54400B	〃 4mm	1
Y65	R-Y54450A	〃 4.5mm	2
Y66	R-Y54500B	〃 5mm	14
Y67	R-Y54600A	〃 6mm	2
Y68	R-YE1018010	〃 8mm	2
Y69	R-H11801	Felt washer, 5 × 10 × 2t	1
Y70	R-H11802	〃 6 × 12 × 2t	2
Y71	R-H11803	〃 6.5 × 11 × 2t	1
Y72	R-H11804	〃 24 × 36 × 1t	2
Y73	R-H11805	〃 17 × 30 × 1t	1
Y74	R-H11806	〃 38 × 54 × 2t	2
Y56	R-YV33655	Vinyl washer 3.3 × 6.5 × 0.5t	6
Y60	R-YE6110015	Polythylen washer 6.1 × 10 × 1.5t	2
Y75	R-YR508010	Rubber washer 5 × 8 × 1t	1
Y76	R-Y103010	Screw, Head-less 3 × 10	4
Y77	R-Y043006	Screw, Truss head, 3 × 6	2
Y78	R-Y314000	Washer, 4mm	2
Y79	R-Y102604	Screw, head-less 2.6 × 4	1

Ref. No.	Parts No.	Description				Q'ty
CAPACITORS						
C1	R-C9146	Electr.	200μF		10V	1
C2,6,10, 14,15,52, 56,60,64, 65	R-C9131	Electr.	5μF		6V	10
C3,53	R-CQS102M	Mylar	0.001μF	±20%	50V	2
C5,55, 11,61	R-C9105	Electr.	30μF		6V	4
C7,57	R-CQS202M	Mylar	0.002μF	±20%	50V	2
C8,58, 19,69	R-C9183 / R-C9120	Electr.	0.2μF		10 or 20V	4
C9,59	R-CQS503K	Mylar	0.05μF	±10%	50V	2
C30,80	R-CKD101Z	Ceramic	100μF	+80−20%	50V	2
C13,63, 32,82	R-C9126 / R-C9831	Electr.	0.1μF		10V / 25V	4
C16,66	R-C9134	Electr.	100μF		3V	2
C17,67	R-CQS303K	Mylar	0.03μF	±10%	50V	2
C18,68	R-CQS403K	Mylar	0.04μF	±10%	50V	2
C20	R-C9145	Electr.	100μF		10V	1
C21,71	R-C9136	Electr.	100μF		6V	2
C22,72	R-CKD103Z	Ceramic	0.01μF	+80−20%	50V	2
C24,74, 106,105	R-C9165	Electr.	500μF		15V	4
C25,75	R-CKD500Z	Ceramic	50μF	+80−20%	50V	2
C28,78	R-CKD752Z	Ceramic	0.0075μF	+80−20%	50V	2
C101	R-CKD103Z	Ceramic	0.01μF	+80−20%	125V	1
C102	R-CQS302M	Mylar	0.003μF	±20%	50V	1
C103,104	R-CQS103M	Mylar	0.01μF	±20%	50V	2
C107	R-C9167	Electr.	2000μF		35V	1
C108	R-C9916	Electr.	50μF		300V	1
C109	R-COA104	Oil	0.1μF		600V	1
C110	R-C7005	Oil	2.2μF			1
C111	R-C9827	Electr.	1000μF		25V	1
C112	R-C9823	Electr.	100μF		25V	1
C113	R-C9186	Electr.	200μF		25V	1
RESISTORS						
R1,51	R-R564K	Carbon-P	560K ohm	±10%	1/4w	2
R3,53, 18,68	R-R152K	〃	1.5K 〃	〃	〃	4
R5,55	R-R184K	〃	180K 〃	〃	〃	2
R6,56	R-R333K	〃	33K 〃	〃	〃	2
R8,9 58,59	R-R472K	〃	4.7K 〃	〃	〃	4
R10,60	R-R101K	〃	100 〃	〃	〃	2
R11,20, 61,70	R-R563K	〃	56K 〃	〃	〃	4
R12,21, 62,71, 2,52	R-R103K	〃	10K 〃	〃	〃	6
R13,27, 63,77	R-R562K	〃	5.6K 〃	〃	〃	4
R14,64	R-R182K	〃	1.8K 〃	〃	〃	2
R15,65	R-R912K	〃	8.2K 〃	〃	〃	2
R16,22, 28,66,72, 78,94,101	R-R392K	〃	3.9K 〃	〃	〃	8

Ref. No.	Parts No.	Description				Q'ty
RESISTORS						
R17	R-R511K	Carbon-P	510 ohm	±10%	1/4W	1
R19,69	R-R682K	〃	6.8K 〃	〃	〃	2
R24,25, 41,42,74, 91,92,105	R-R102K	〃	1K 〃	〃	〃	8
R26,37, 39,76, 87,89	R-R153K	〃	15K 〃	〃	〃	6
R29,79	R-R391K	〃	390 〃	〃	〃	2
R30,32, 80,82	R-R132K	Solid	1.3K 〃	〃	1/2w	4
R31,33, 81,83	R-R330K	Carbon-P	33 〃	〃	1/4W	4
R34,35, 84,85	R-R7803	Winding	0.5 〃		1/2W	4
R36,86	R-R823K	Carbon-P	82K 〃	〃	1/4W	2
R38,88	R-R752K	〃	7.5K 〃	〃	〃	2
R40,90	R-R221K	〃	220 〃	〃	〃	2
R43,93	R-R7802	Winding	8 〃	—	7W	2
R45,95	R-R183K	Carbon-P	18K 〃	〃	1/4W	2
R46,96	R-R395K	〃	3.9M 〃	〃	〃	2
R47,97	R-R302K	〃	3K 〃	〃	〃	2
R102	R-R080K	〃	8.2 〃	〃	1W	1
R103,104	R-R151K	〃	150 〃	〃	1/4W	2
R106	R-R270K	〃	27 〃	〃	〃	1
R107	R-R7809	Winding	50 〃	—	5W	1
R108	R-R561J	Carbon-P	560 〃	±5%	1/4W	1
R109	R-R7807	Winding	8 〃	—	3W	1
R110	R-R7806	〃	80 〃	—	5W	1
R111	R-R101K	Carbon-L	100 〃	±10%	1W	1

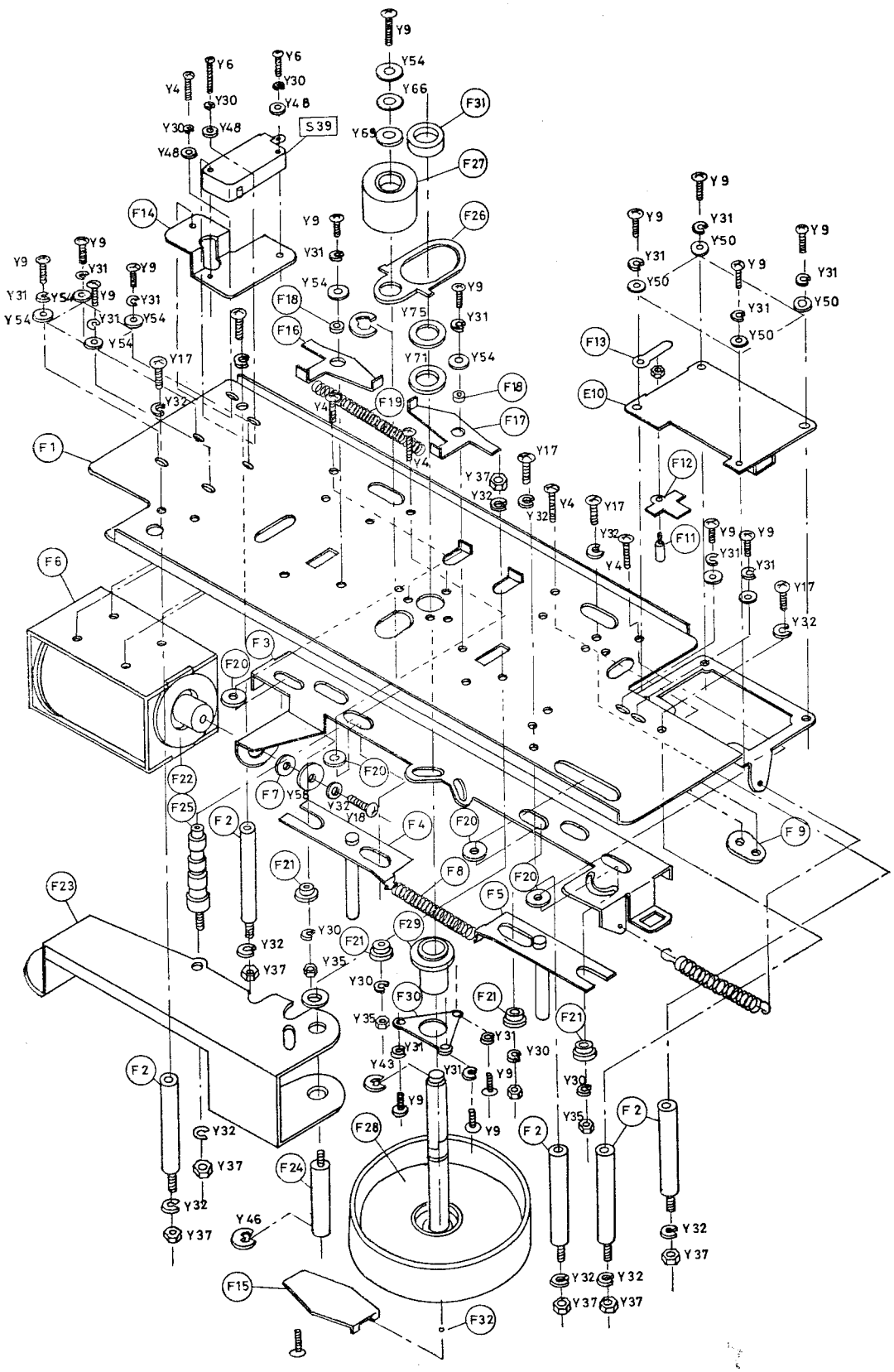
Ref. No.	Parts No.	Description		Q'
SEMICONDUCTORS				
Tr1,7		Transistor	2SB400	2
Tr2,3,8,9		〃	2SB303	4
Tr4,10		〃	2SB187	2
Tr5,6,11,12		〃	2SB474	4
Tr13,14		〃	2SB22	2
		Diode	1S188 — 1S426G	2
		Thermistor	SDT-04	4
		Silicon rectifier	SD-16D	2
		〃	SD-1	1
		〃	SD-1Y	1
TRANSFORMERS AND COILS				
P.T.	R-W4847a	Power transformer		1
I.P.T.	R-W6812	Input transformer		2
L1,2	R-W1808	Choke coil 3.3mH		2
L3	R-W1838	Choke coil 1.8mH		1
OSC	R-W8196	Oscillator coil		1
VARIABLE RESISTORS AND CAPACITORS				
	R-R11012	Semi-fixed resistor	5K ohm, Meter adj.	2
	R-R11013	〃	10K ohm, Gain adj.	1
	R-R124122a	Variable resistor	10K ohm, VR w/Mode SW.	2
	R-R124131	〃	10K ohm, TONE	2
	R-C0803a	Trimaner (twined)	10 - 60pF, Rec. bias adj.	1
HEADS				
RPH	R-S6906	Record/playback head		2
EH	R-S6907	Erase head		2
SWITCHES				
S1-1～S1-12 S2-1～S2-12 S1-13,S2-13	R-S4806	Slide, record/play		2
S1-14,S2-14	R-S4852	Rotary, speed compensation		1
S1-15,S2-15	R-S4266	Slide, speaker ON/OFF		1
S1-16～S1-18 S2-16～S2-18	R-S4853	Slide, head changing		1
S19,26	R-S4355	Spring, playback		1
S21,23	R-S4850	See-saw, AC power		1
S22	R-S4836	Micro, motor power		1
S24	R-S4880	Micro, automatic tape stop		1
S25	R-S4870	Spring, fast forward		1

PARTS LIST

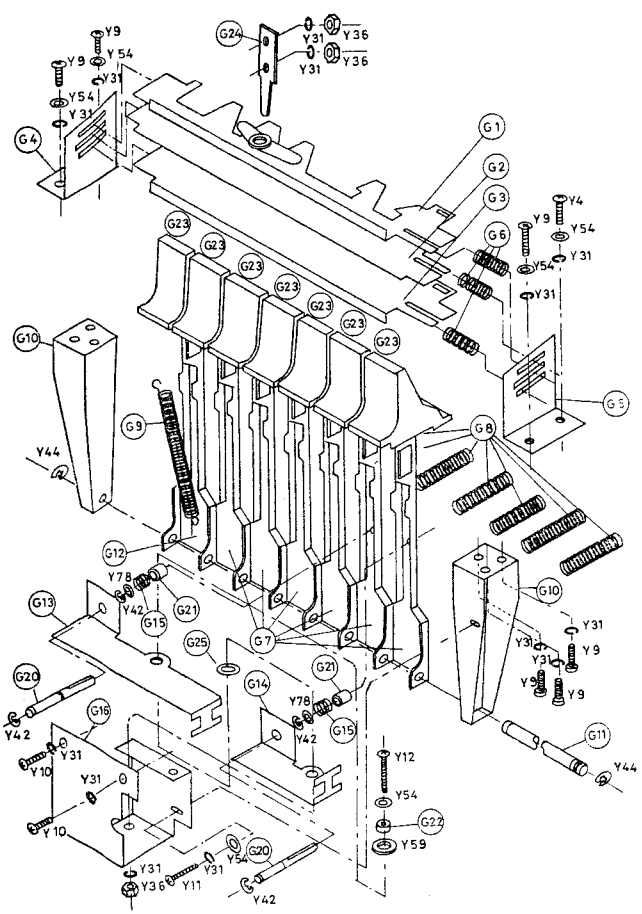
Ref. No.	Partr No.	Description	Q'ty
SWITCHES			
S27 ~ S31	R-S4856	Rotary, reverse function	1
S32,S33	R-S4864	Spring, direction button	1
S34 ~ S37	R-S3830	Relay, on PCB.	1
S38	R-S4880	Micro, motor slip	1
S39	R-S4880	Micro, reverse plunger	1
S1-40,S2-40	R-S4835	Slide, sound on sound	1

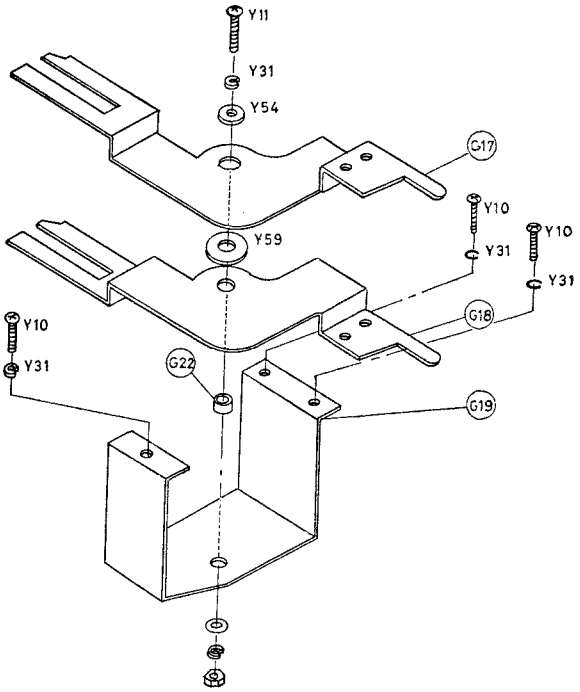
Parts No.	Description	Q'ty
MISCELLANEOUE		
R-268390	External connection panel	1
R-S2829	Socker complete, LINE OUT & AUX	1
R-118832	Mounting panel	1
R-118824	Bracket, panel mtg.	2
R-118905	Shield screen, jacks	1
R-318162	Mounting base, headphone	1
R-S2139	Socket, speaker and mic.	4
R-S2802	Socket, DIN connector	1
R-35272	Cord fixer	1
R-S1038	Fuse holder	1
R-S1090	Fuse 2A	1
R-S1227	Plug, power supply select	1
R-S2133	Socket, power supply select	1
R-S3007	Lug plate	1
R-261193a	Heat sink of OSC transistor	1
R-418069a	Printed circuit board, main	1
	AC POWER CORD IS CHOSEN IN FOLLOWING GROUPS.	
R-AT16905	-AC power cord, "A" marked	1
R-S1076a	-AC, power cord, w/English-type 3-pin plug	1
R-S2145	-Plug, Australia-type 3-pin	1
R-AT16906	AC power cord, "B" marked	1
R-AT16907	-AC power cord, "C" marked	1
	-AC power cord, w/Photex-type 3-pin plug	1
R-S1076a	-Plug, English-type 3-pin	1
R-AT16908	-AC power cord, "D" marked	1
R-S3134	-AC power cord	1
R-S8574b	-AC adaptor, Siemens-type 2-pin	1
R-S8575b	-AC adaptor, English-type 2-pin	1
PACKING		
R-498332	Display box	1
R-498335	Cushion, top	1
R-498333	Cushion, bottom	1
R-498336	Cushion, sid	2
R-478220	Instruction booklet	1
R-358024	Polybag, set	1
R-471099a	Caution tag, power select	1
R-498008	Cushion, reel	1
R-478118	Label, 60Hz capstan	1
R-478119	Label, 50Hz capstan	1
ACCESSORIES		
R-S6828	Microphone	2
R-S88102	Microphone stand	2
R-S88017a	Patch cord	2
R-S1849	Sensing foil	1
R-S88370	7″ tape	1
R-31304b	7″ empty reel	1
R-448079	Reel cap	2
	Splicing tape	1

FLYWHEEL AND PLAY MECHANISM

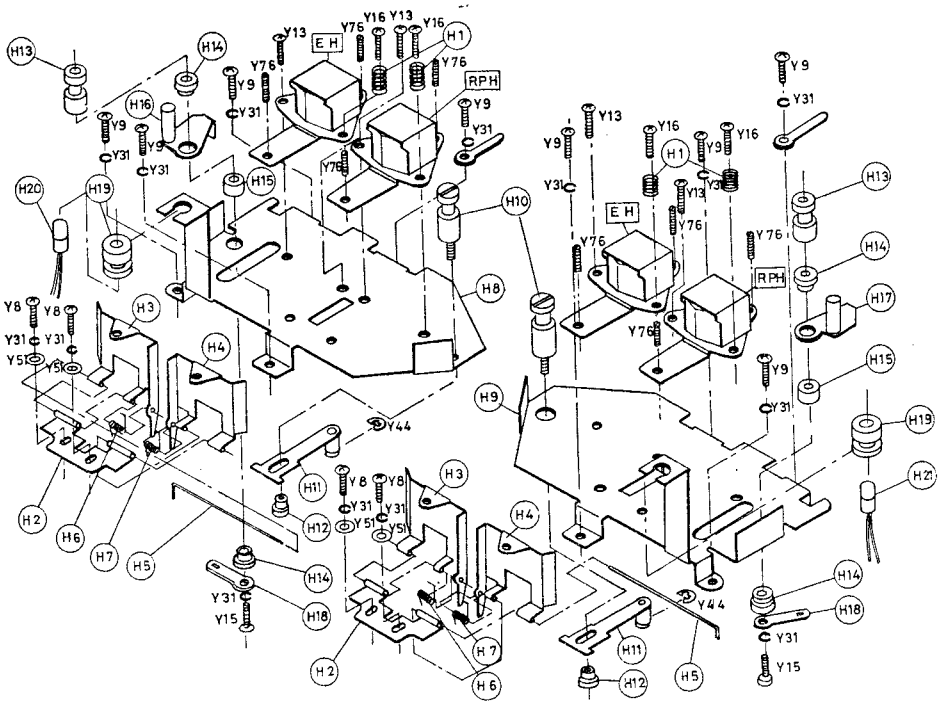


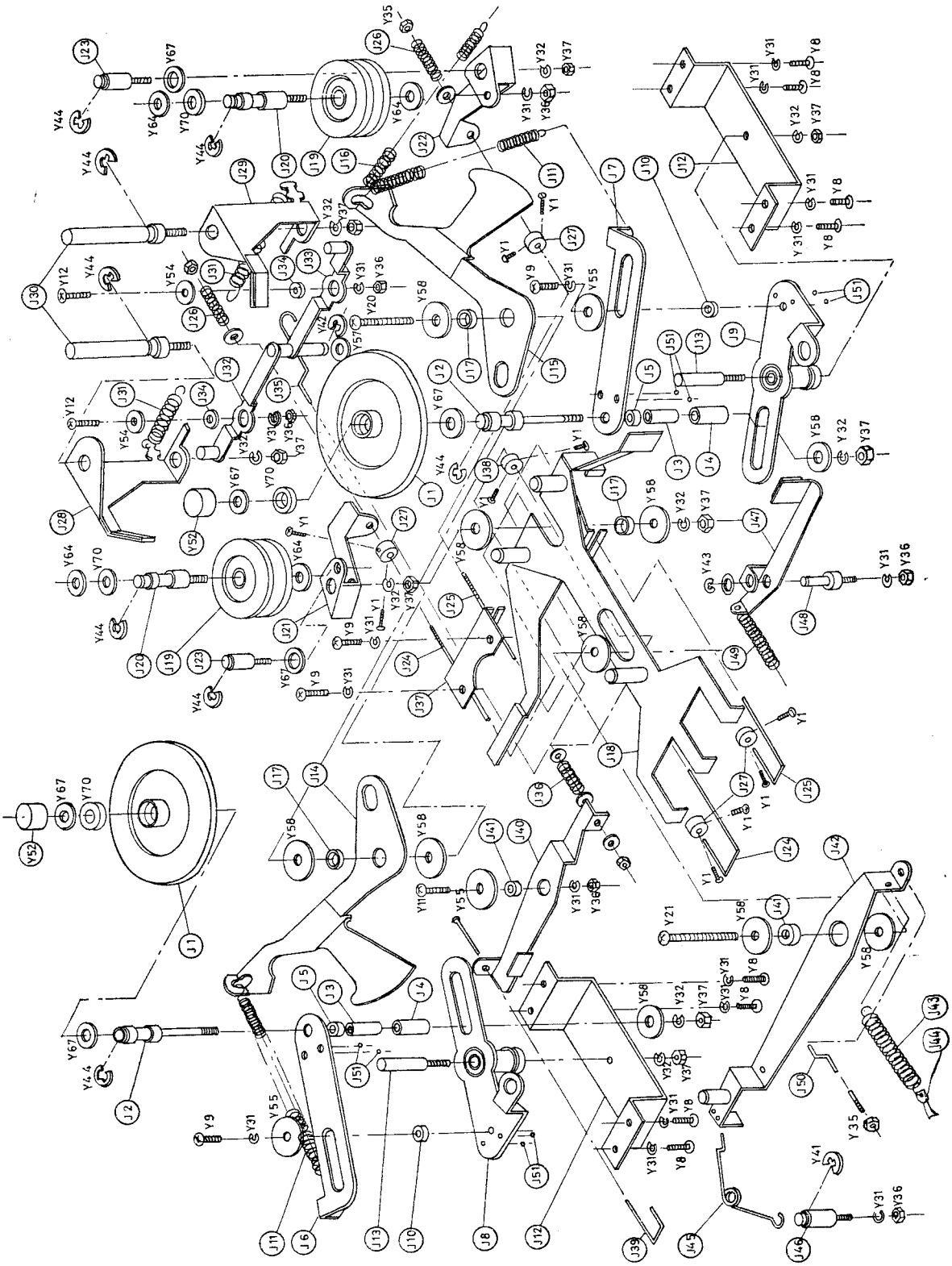
FUNCTION BOTTOM & RECORD MECHANISM



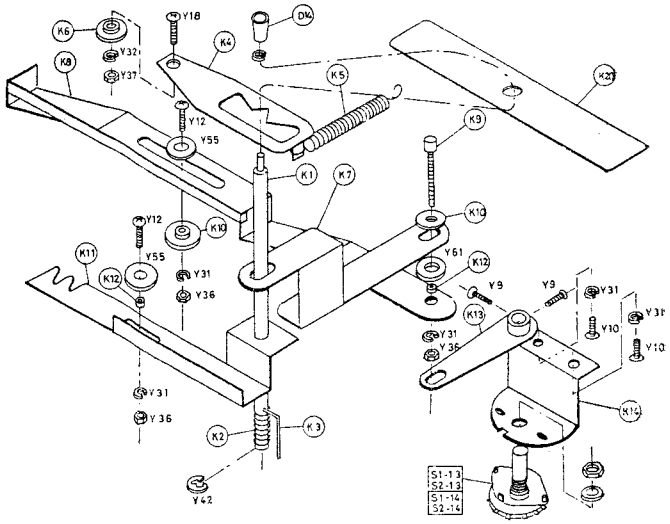


HEAD SYSTEM

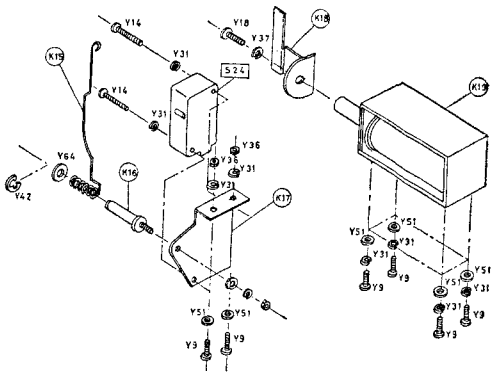




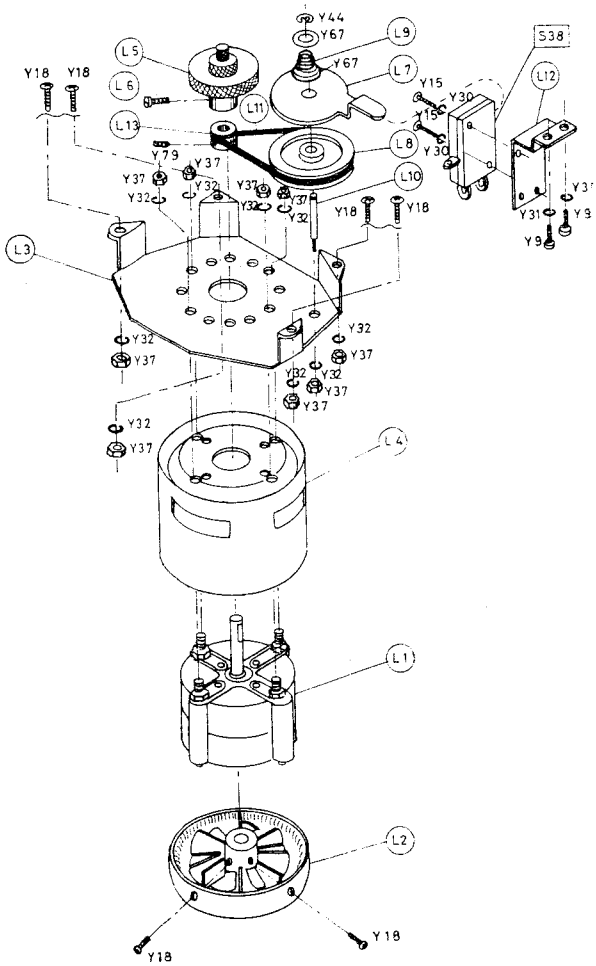
SPEED SELECTOR MECHANISM



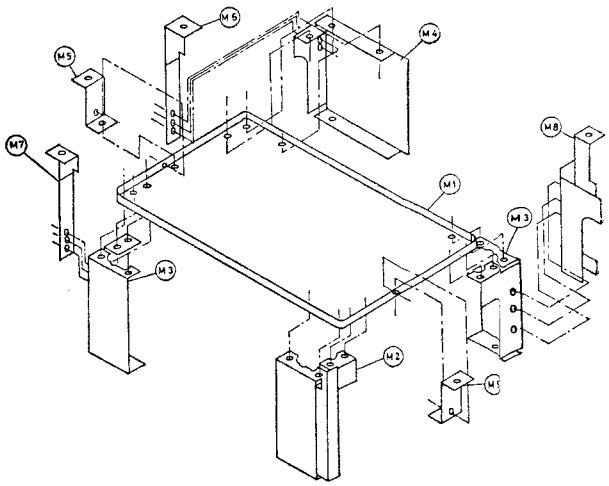
AUTOMATIC STOPPER



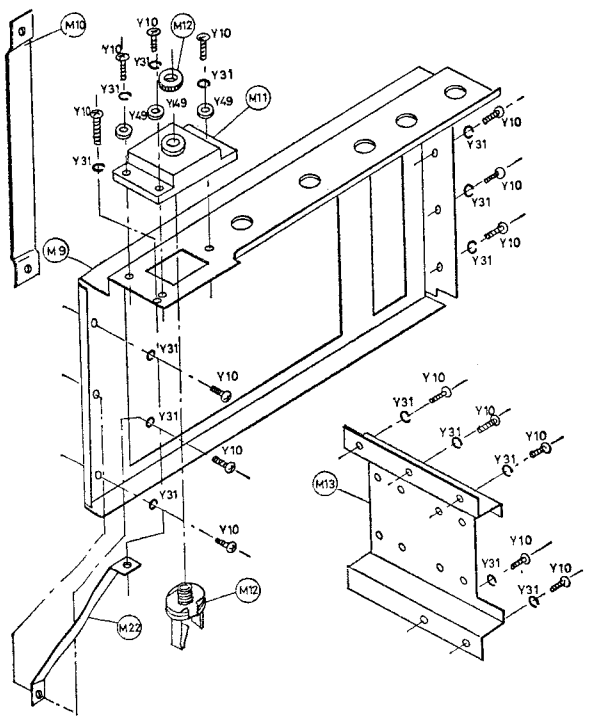
MOTOR

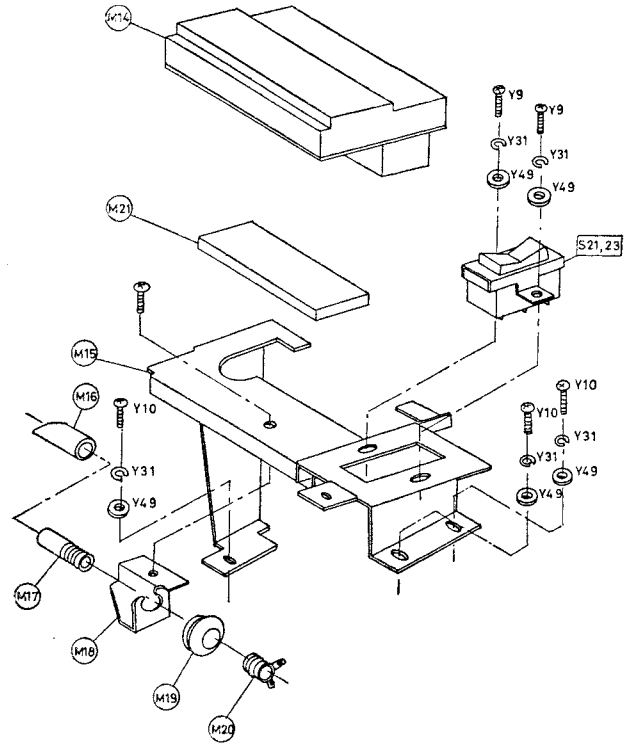


MECHANISM CHASSIS

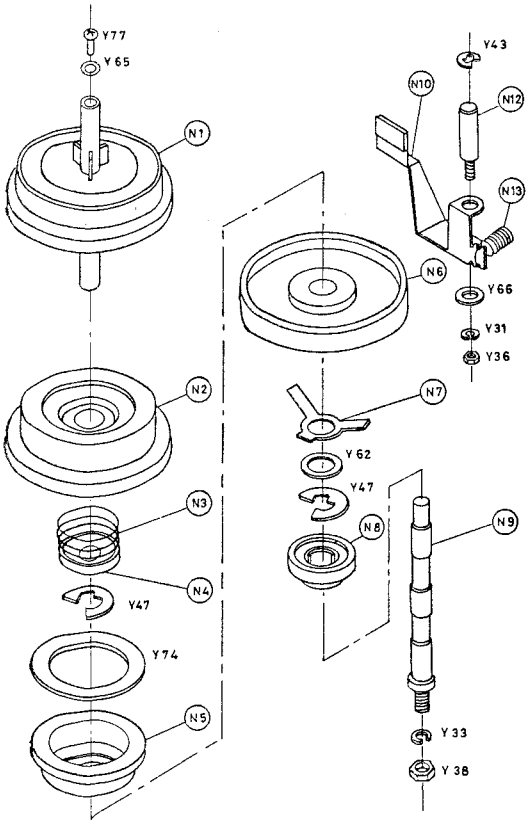


MECHANISM CHASSIS

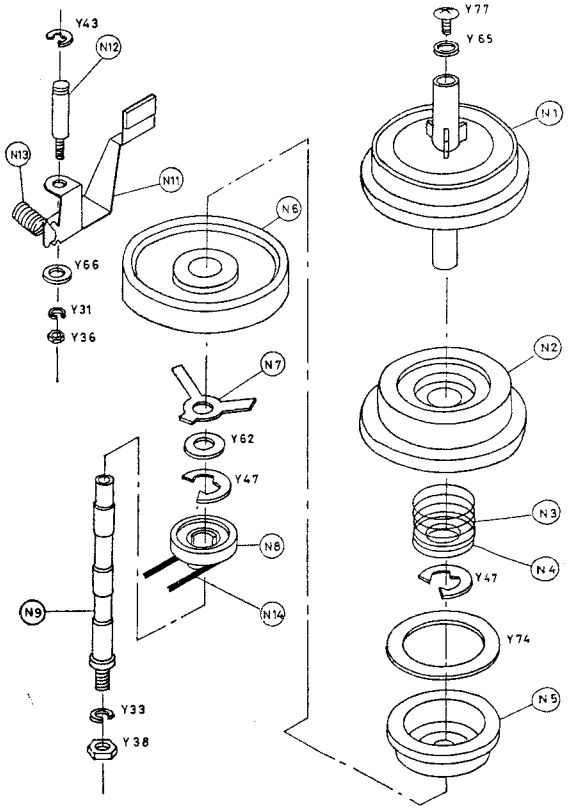




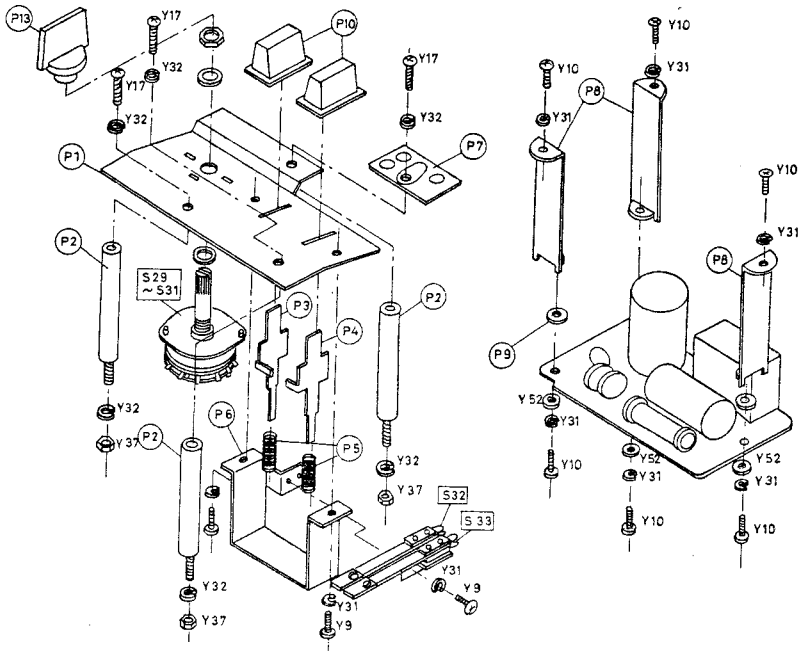
RESPECTIVE REEL PLATE (RIGTH)



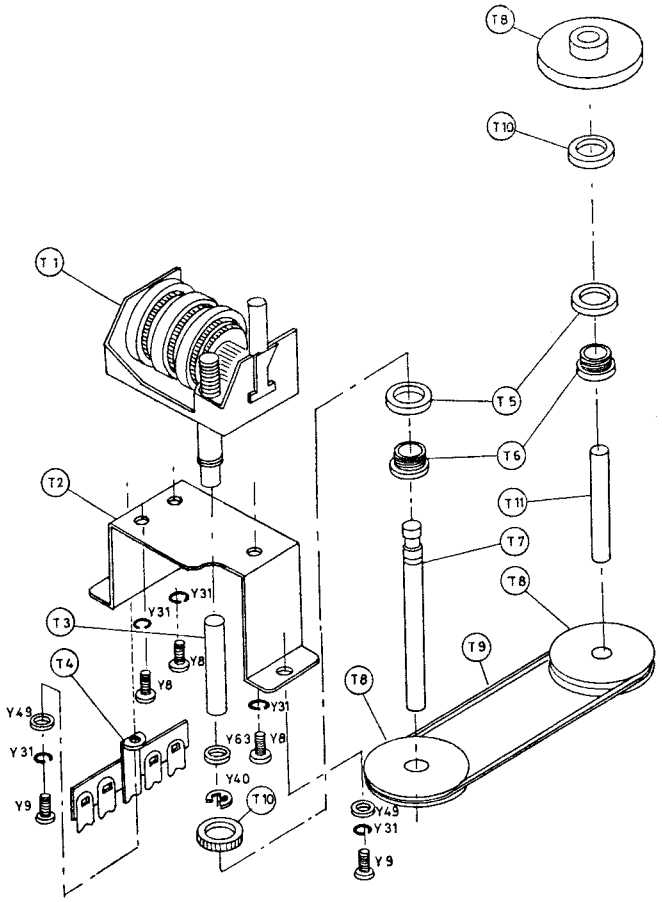
RESPECTIVE REEL PLATE (LEFT)



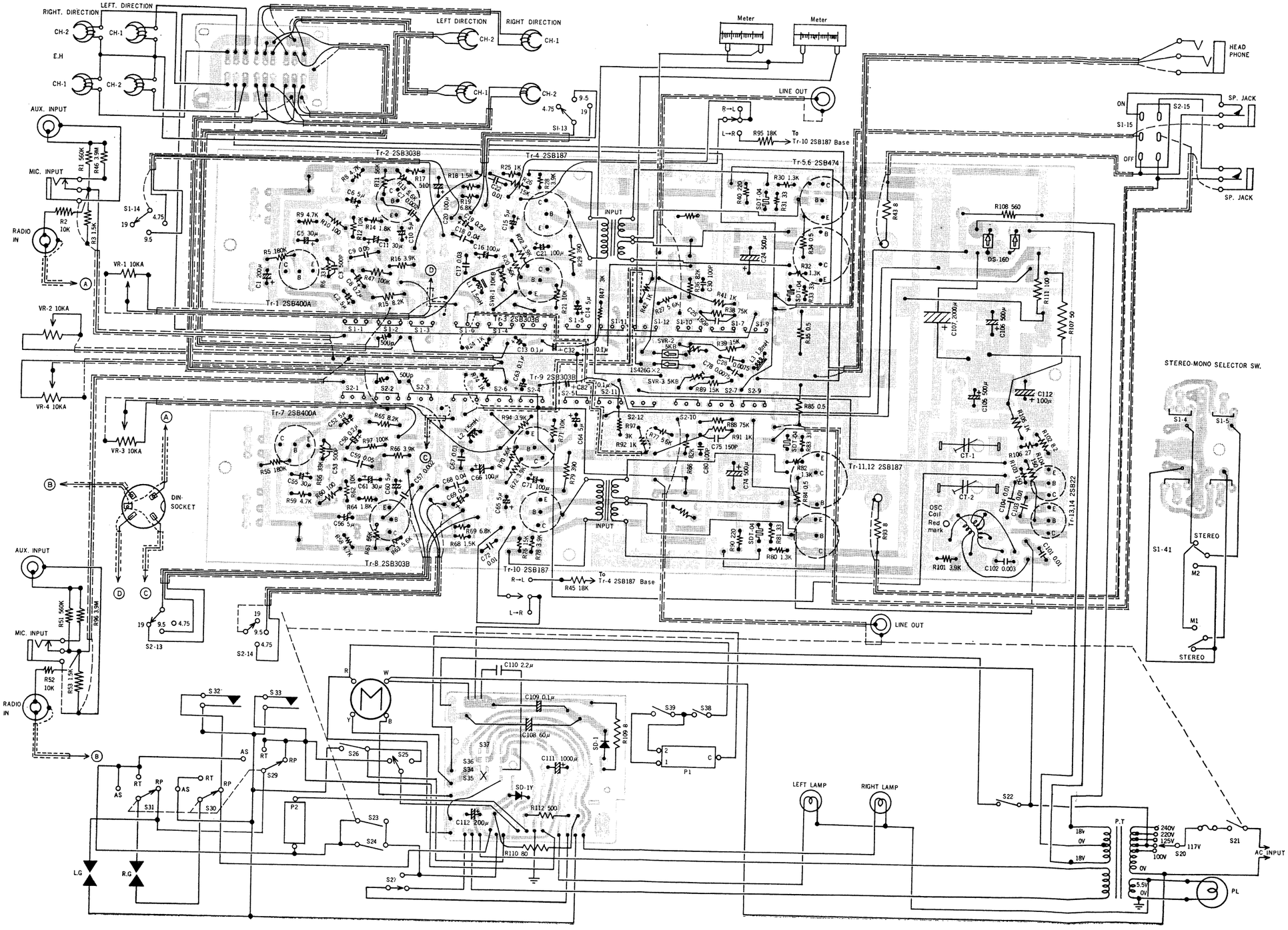
REVERS MECHANISME



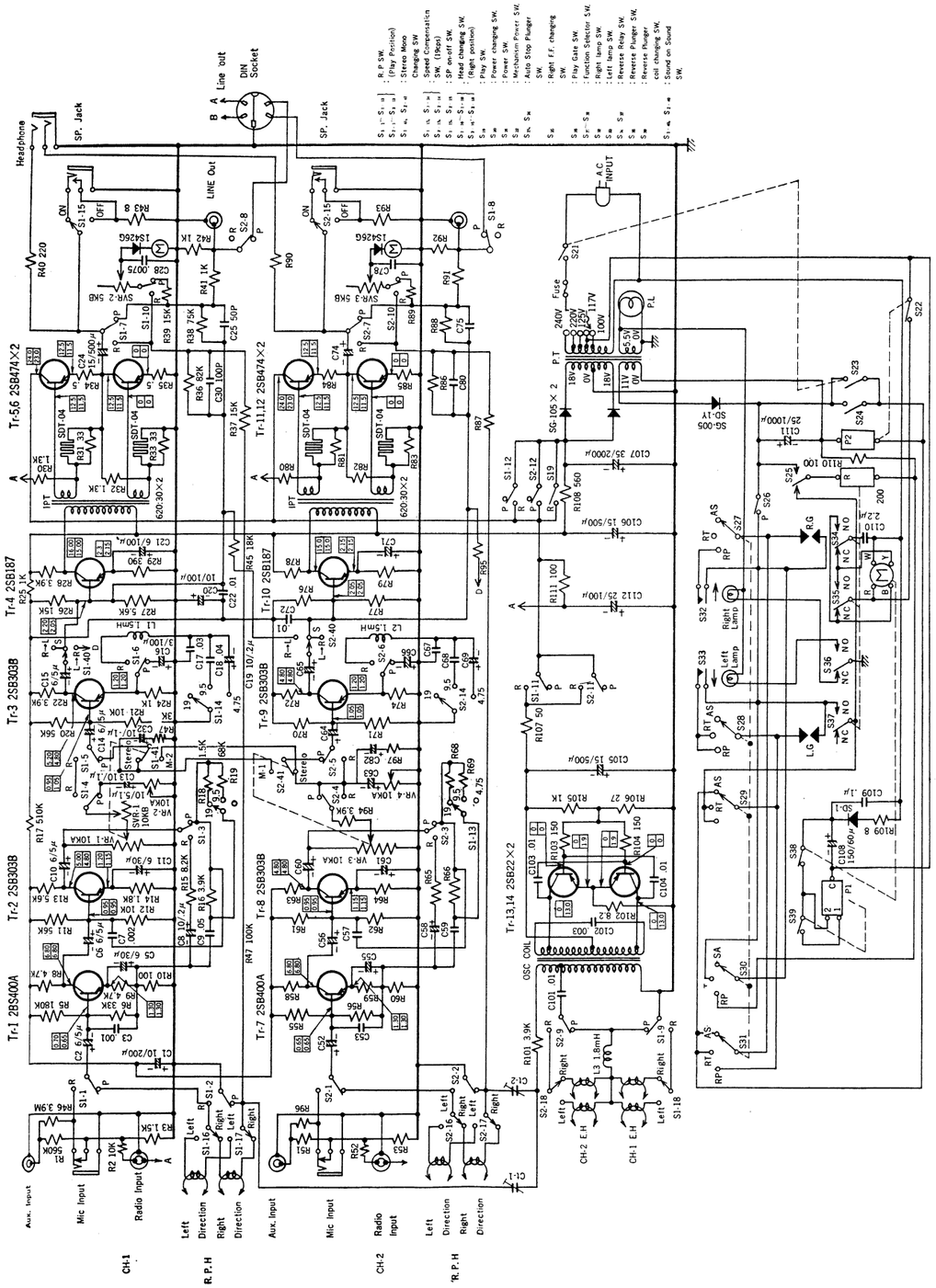
TAPE COUNTER



WIRING DIAGRAM



CIRCUIT DIAGRAM



November, 1968 Printed in Japan